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Providing forage for cow herds is normally paramount to maintaining a desirable level of productivity. But during drought years, the supply of standing and harvested forages may be extremely limited and/or very expensive.

Relocating the cow herd into drylot is a management alternative that may allow producers to take advantage of inexpensive grains and byproduct feeds to formulate cost effective cow diets.

Most common supplementation strategies are designed to maximize forage intake and digestibility. In contrast, diets for drylot cows are formulated to meet the nutrient requirements of the cows while minimizing feed costs. As a result, intake is generally limited and more concentrate feeds are included to cheapen the diets.

Nutrition

Nutritionally, limit-feeding is a sound strategy for feeding the cow herd; however, there are many factors to carefully consider before implementing this feeding system.

Since intake is restricted, cattle may appear gaunt and behave as though hungry. After 14 to 21 days, they will adapt to the reduction in feed intake; however, they may continue to appear gaunt. It is essential to resist the temptation to provide additional feed. Feeding more than required will unnecessarily increase feed cost and may lead to excess body condition on the cows.

Often, beef producers are skeptical of a limit-feeding system because of the high level of concentrates in the diets. While there is some risk for digestive and metabolic disorders, careful selection of feedstuffs can significantly reduce the potential for these problems. Bloat, acidosis, and founder are disorders commonly associated with feedlot cattle consuming high-energy diets based on starchy feeds such as corn or sorghum grain. Highly digestible fiber sources like soybean hulls, wheat middlings, or corn gluten feed, will nearly eliminate starch from the diet without significantly sacrificing energy intake.

Starch also can interfere with rumen microbes' ability to digest fiber. Inclusion of high fiber feeds will reduce or eliminate these negative effects on fiber digestion.

A minimal amount of roughage (hay or silage) is required to maintain rumen function. As a rule of thumb, cows should receive at least one-half percent of their body weight as hay or silage (90% dry matter basis). Thus, a 1200 lb cow should receive at least 6 lb of roughage per day. Reducing the roughage intake below this level increases the risk of metabolic disorders.

When using grains and byproduct feeds, carefully evaluate the mineral composition of the diet. These feeds often contain high levels of phosphorus, potassium, and sulfur and are generally low in calcium. Rather than supplying supplemental phosphorus, as would normally be done for cattle on forage-based diets, it may be calcium that will be needed. Assuming the dietary requirements have been satisfied, the calcium:phosphorus ratio should be maintained between 1:1 and 6:1 to prevent metabolic disorders. Cattle should also have access to a well-balanced vitamin and trace mineral package.

Facilities

Pens used to drylot cows should be well drained and allow a minimum of 500 square feet per animal; sacrificial pastures may be a desirable alternative. Each cow should be provided with a minimum of 30 inches of bunk space, regardless of the type of feeder. Fencing should be able to withstand mature cows crowding and reaching. Cattle should have access to a water source capable of providing 15 to 20 gallons per cow per day. Water quality should be taken into account when selecting sources. Alternative, or backup water sources are also wise.

Management

Cattle should be adapted to high-grain diets over a period of 7 to 10 days and observed closely during that period. Feeding should occur on a regular basis. Timely feeding is critical to maintaining a healthy rumen environment and prevention of digestive disorders. Feeding at multiple times per day is desirable, but not essential. If grains are major components of limit-fed diets, addition of an ionophore will help improve feed efficiency and reduce coccidiosis.

Finally, as with any feeding system for gestating cattle, monitor body condition to determine if the diets are meeting the nutritional demands of the cattle or are leading to excessive fat deposition. Limit-fed diets can easily be adjusted to account for these deficiencies or excesses.

Feed costs of example diets

The diets below are calculated to demonstrate the potential differences in feed costs that can be attained with alternative feeds. Use your own costs to calculate the options best for you. Also keep in mind that there are non-feed costs for storage and delivery to the cows that must be accounted for with any feeding system.

Example #1

Assumptions: 1250-lb dry cow, Angus; BCS 4 (want to increase to 5 in 120 days); in drylot October 1 (20 mph wind, 50° F); CRP hay = 45% TDN, 5% CP. All cattle should be provided with a balanced vitamin and trace mineral package.

Item	*$/ton*	*A*	*B*	*C*	*D*	*E*	*F*
				lb/day as fed			
Wheat straw	50	6.5					
CRP hay	75		6.5		15		
Crested wheatgrass hay	100					10	15
Immature corn silage	25			36			
Whole shelled corn	80	10	7.5				
Wheat middlings	100						
Soybean hulls	85					10	
Dried distiller's grains	80		7.5	10	11		
Corn gluten feed	70	6.5					10
Sunflower seed meal	100					4.5	
Limestone	100	0.25	0.3	0.25	0.3	0.05	0.35
Feed cost ($/day)		**0.80**	**0.86**	**0.86**	**1.02**	**1.15**	**1.27**

Example #2

Assumptions: 1250-lb dry cow, Angus, BCS 5 (no desired increase), feeding period begins February 1 (20 mph wind, 10° F), calve March 15, CRP hay = 45% TDN, 5% CP. All cattle should be provided with a balanced vitamin and trace mineral package.

Item	*$/ton*	*A*	*B*	*C*	*D*	*E*	*F*
				lb/day as fed			
Wheat straw	50	7		5			
CRP hay	75		7		11		
Crested wheatgrass hay	100					15	5.5
Alfalfa hay	125						5.5
Immature corn silage	25			40			
Whole shelled corn	80	15				3	
Wheat middlings	100				11		11
Soybean hulls	85		15				11
Dried distiller's grains	80			15	11	15	
Corn gluten feed	70	10	10.5				
Limestone	100	0.5	0.3	0.4	0.7	0.4	0.15
Feed cost ($/day)		**1.15**	**1.29**	**1.25**	**1.44**	**1.49**	**1.64**

For more detailed information on limit-feeding, refer to the website http://ars.sdstate.edu/extbeef or contact your local livestock Extension educator or specialist. This publication can be accessed electronically from the SDSU College of Agriculture & Biological Sciences publications page at http://agbiopubs.sdstate.edu/articles/ExEx2032.pdf or from the Extension Service Drought Information Website at http://sdces.sdstate.edu/drought/

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